

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization International Bureau



(43) International Publication Date
1 September 2005 (01.09.2005)

PCT

(10) International Publication Number
WO 2005/079958 A1

(51) International Patent Classification⁷: **B01D 53/70**, 53/68, B01J 19/08, 19/12, C23C 16/44

(21) International Application Number: **PCT/GB2005/000619**

(22) International Filing Date: 18 February 2005 (18.02.2005)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
0403797.4 20 February 2004 (20.02.2004) GB

(71) Applicant (for all designated States except US): THE BOC GROUP PLC [GB/GB]; Chertsey Road, Windlesham, Surrey GU20 6HJ (GB).

(72) Inventors; and

(75) Inventors/Applicants (for US only): SMITH, James, Robert [GB/GB]; c/o BOC Edwards, Kenn Business Park, Kenn Road, Clevedon, North Somerset BS21 6TH (GB). SEELEY, Andrew, James [GB/GB]; c/o BOC Edwards, Kenn Business Park, Kenn Road, Clevedon, North Somerset BS21 6TH (GB).

(74) Agent: BOOTH, Andrew, Steven; The BOC Group Plc, Chertsey Road, Windlesham, Surrey GU20 6HJ (GB).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

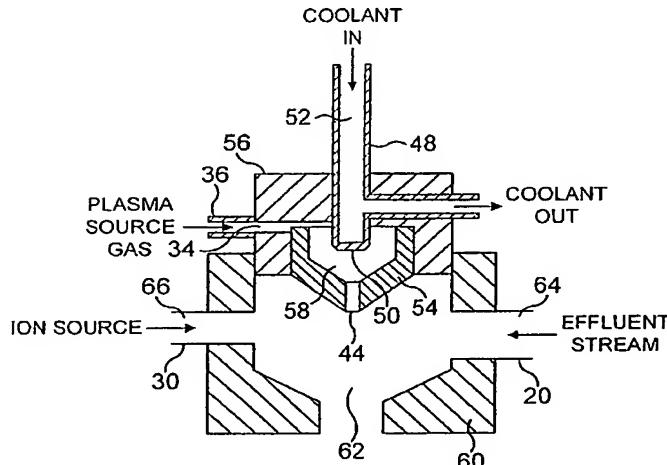
(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

- with international search report
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

[Continued on next page]

(54) Title: METHOD AND APPARATUS FOR TREATING A FLUOROCOMPOND-CONTAINING GAS STREAM



WO 2005/079958 A1

(57) Abstract: A method for treating a perfluorocompound-containing gas stream, for example an effluent fluid stream from a semiconductor manufacturing process tool. In one embodiment, a plasma torch is used to generate a plasma from an ionisable gas, such as nitrogen or argon. This plasma is injected into a reaction chamber, which receives both a stream of water vapour and an effluent fluid stream. The ionised stream dissociates the water vapour into heated H⁺ and OH⁻ ions for reaction with the perfluorocompound. An apparatus for treating a perfluorocompound containing gas stream comprises a means for generating a plasma from a source gas, a means for injecting the plasma into the reaction chamber, a means for conveying the gas stream to the reaction chamber, and a means for conveying a source of H⁺ and OH⁻ ions to the plasma.

WO 2005/079958 A1



For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.